REMARKS

The Examiner is thanked for the due consideration given the application. This amendment is being filed concurrently with a Request for Continued Examination.

Claims 25-27, 29-35, 37-39 and 41-46 are pending in the application. The claims have been amended to improve their language in a non-narrowing fashion.

No new matter is believed to be added to the application by this amendment.

Rejection Under 35 USC § 112, Second Paragraph

Claims 25, 29, 31, and 41 have been rejected under 35 USC §112, second paragraph as being indefinite. This rejection is respectfully traversed.

The comments in the Official Action have been considered, and the claims have been amended to better set forth positive method steps and operative relationships to be clear, definite and have full antecedent basis.

This rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

Rejections Based on KREUZER et al.

Claims 25, 26, 29, 30, 32, 33, 34, 35, 37, 38, 42, 43, 44 and 45 have been rejected under 35 USC § 103(a) as being unpatentable over KREUZER et al. (U.S. Patent 4,937,449) in view of PREIKSCHAT et al. (U.S. Patent 4,871,251). Claims 27 and 39 have been rejected under 35 USC § 103(a) as being unpatentable over KREUZER et al. in view of PREIKSCHAT et al., and further in

view of KOBAYASHI et al. (U.S. Patent 5,245,671). These rejections are respectfully traversed.

The present invention pertains to an optical measurement and inspection arrangement that is illustrated, by way of example, in Figure 5 of the application, which is reproduced below.

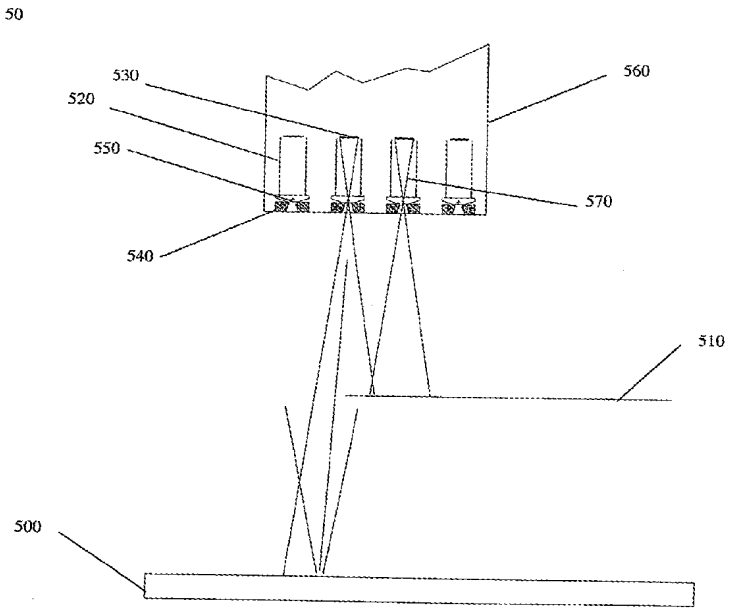


Fig 5.

Figure 5 shows light detectors 570 in detector module 560. Each detector can have a field of view that can overlap with an adjacent detector.

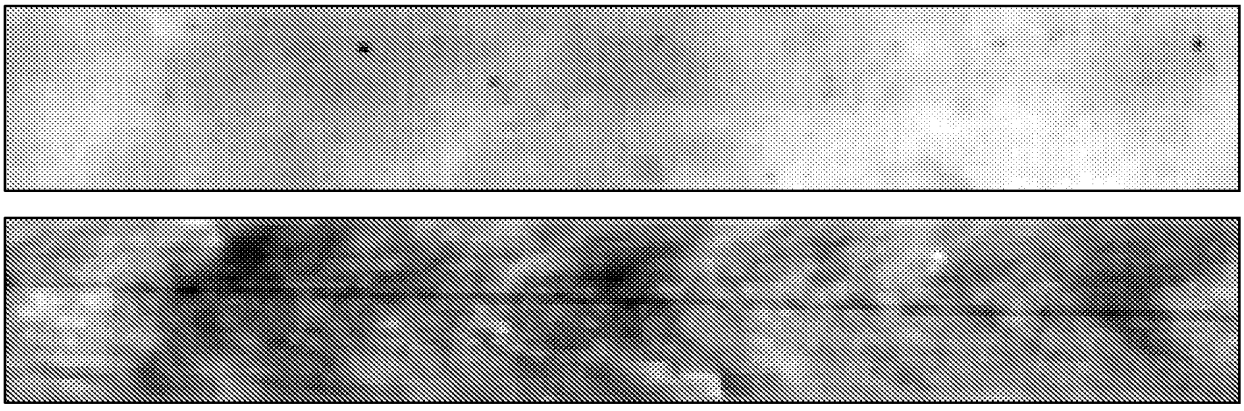
In the present invention, the focal spot does not oscillate. In the present invention, there are no mechanically moving parts in the measurement system, apart from the traversing sheet to be measured. In the present invention, both the light emitter and the receiver are electronic and are driven with an electronic synchronization signal.

Another aspect of the present invention is the utilization of a common carrier waveform AC voltage signal having a fixed frequency, and a symmetrical 50% duty cycle square wave signal is processed from a common carrier waveform signal and carries equal frequency and phase in terms of zero crossings.

Distinctions of the present invention over the applied art references are of record in the application. For brevity, these distinctions are not reproduced here.

In response to these distinctions, the Official Action asserts in paragraph 17 that the teachings of PREIKSCHAT et al. can be combined to address the deficiencies of KREUTZER et al. However, Seppo Pyörret, a named inventor, submits the following observations (which also can be found in the attached declaration):

Below, a case is illustrated in which the same material has been photographed at two different angles of lighting. The upper picture depicts a so-called diffusion lighting angle (F1), and the lower picture depicts a mirror reflection angle (F2). The F1 frequency has been 30 kHz at stage 0° during the measurement, and the F2 frequency is 30 kHz at stage +90°.



The lower picture clearly shows a transverse rising line through the entire sample, the upper picture does not show it at all. The difference in the lighting angles is clear - it is impossible to detect the line in the upper picture. The lower picture shows all the changes in the luster of the coated paper and therefore the line also, the width of which is ca. 0.5 mm.

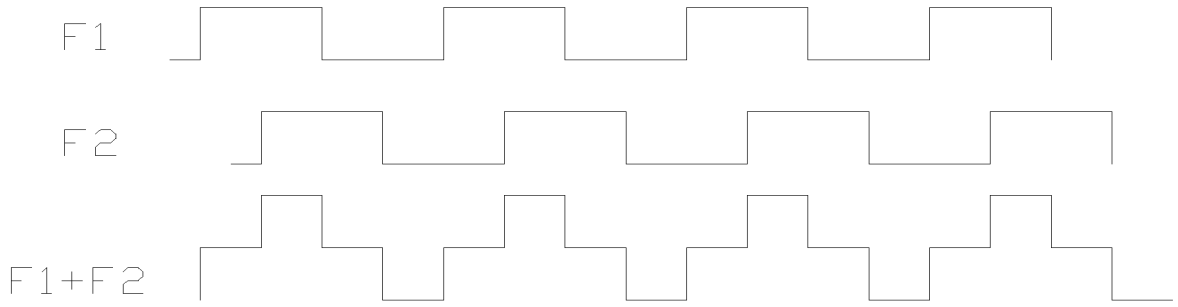
Combination of KREUZER et al. and PREIKSCHAT et al.

A logical combination of these two patents would lead to a device in which two or more modulation frequencies are used, and in which the PREIKSCHAT et al. method of generating a synchronic signal for demodulating each frequency component would be used. This calls for using a band all-pass filter in front of each frequency channel.

PREIKSCHAT et al. does not work if the signal from the pre-amplifier is weak, near noise for example. In such a case, a synchronizing signal cannot be formed into rectification. This may occur, for example, in a fluoroscopic situation where the light permeation of the material is weak (cardboard) or the material is completely impermeable to light (metal). In the case of SRI, this problem never occurs because the synchronizing signal is always brought from outside and the rectification is always done according to the received synchronizing signal. In fact, this external synchronization can be used to measure a signal, which is completely covered by noise (cf. the pre-amplifier output signal), presuming that there is more signal

than noise on the modulation frequency. This is impossible with both PREIKSCHAT et al. and KREUZER et al.

The KREUZER-PREIKSCHAT combination leads to the problem of how the receiver can distinguish frequency components from the pre-amplifier signal using the F1 and F2 frequency components as presented above. The picture below illustrates independent modulation frequencies F1 and F2. The lowermost picture illustrates the signal seen after the pre-amplifier when the frequency components have been summed.



PREIKSCHAT et al. suggest that a PLL circuit be used for gathering phase information in order to perform rectification of the signals. The example above indicates that this is not possible using the PREIKSCHAT et al. method - the question is onto which frequency component (or to be exact, in which stage) PLL is locked when the sum signal F1 + F2 is examined? How can PLL distinguish these two frequency components from each other? Solving the problem clearly becomes more complex if, for example, an F3 frequency of 60 kHz is added. This problem cannot be solved using the PREIKSCHAT et al. structure.

The teachings of KOBAYASHI et al. fail to address the deficiencies of KREUZER et al. and PREIKSCHAK et al. discussed above.

One of ordinary skill and creativity would fail to produce a claimed embodiment of the present invention from knowledge of KREUZER et al. and PREIKSCHAK et al. (and KOBAYASHI et al.), and a *prima facie* case of unpatentability has thus not been made.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

CONCLUSION

The Examiner is thanked for considering the Information Disclosure Statement filed August 2, 2005 and for making an initialed PTO-1449 form of record in the application.

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

The rejections are believed to have been overcome, obviated or rendered moot, and no issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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